PICTURE TAKING

WITH THE

BROWNIE CAMERA

NO. 2

Price Ten Cents.

EASTMAN KODAK CO.

ROCHESTER, N. Y.

ORDER FILM BY NUMBER

All Kodak Films may be distinguished by the numbers on the ends of the cartons

120

is the number for film for this camera (No. 2 Brownie). The number appears both on the carton and on the cartridge.

NOTICE.

The duplex paper (black on one side, red on the other) now used in Kodak cartridges is superior to the black paper formerly used, in that it has no deleterious effect upon the keeping qualities of the film and absolutely does away with number markings.

In watching for numbers through the window, one should now look for black numbers on red paper, instead of, as formerly, white numbers on black paper.

Wherever the term "duplex paper" is used in this manual, reference is made of course, to this black and red paper.

BEFORE LOADING

Before taking any pictures with the No. 2 Brownie Camera read the following instructions carefully, and make yourself perfectly familiar with the instrument, taking special care to learn how to operate the shutter. Work it for both time and instantaneous exposures several times before threading up the film.

The first and most important thing for the amateur to bear in mind is that the light which serves to impress the photographic image upon the sensitive film in a small fraction of a second when it comes through the lens, can destroy the film as quickly as it makes the picture. After the film has been developed and all *developer thoroughly washed out* it may be quickly transferred in subdued white light to the fixing bath without injury. Throughout all the operations of loading and unloading, be extremely careful to keep the duplex paper wound tightly around the film to prevent the admission of light.

EASTMAN KODAK COMPANY,
Rochester, N. Y.

PART I.

Loading the Brownie Camera.

The film for the Brownie Camera is put up in light-tight cartridges, and the camera can, therefore, be loaded in daylight. This operation should, however, be performed in a subdued light, not in the glare of bright sun light.

The Film
No. 120

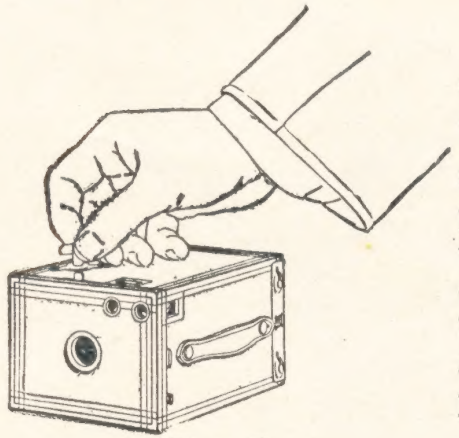


FIG. I.

To Load:

1. Take a position at a table as far as possible from any window, place the camera on the table before you and pull out on the winding key as in Fig. I.

2. Now open back of camera by pushing to left on metal slide lock as shown in FIG. II,

then lift up projecting end of slide-lock and open door as in Fig. III.

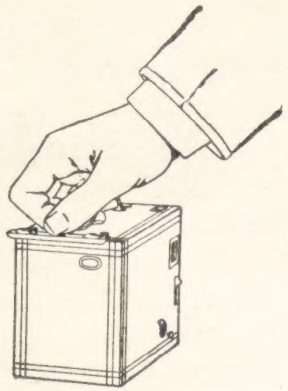


FIG. II.

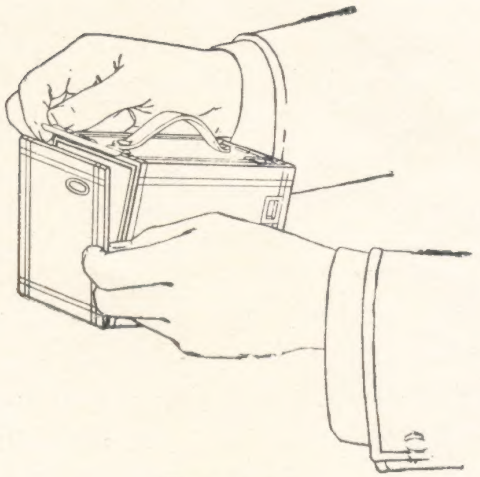


FIG. III.

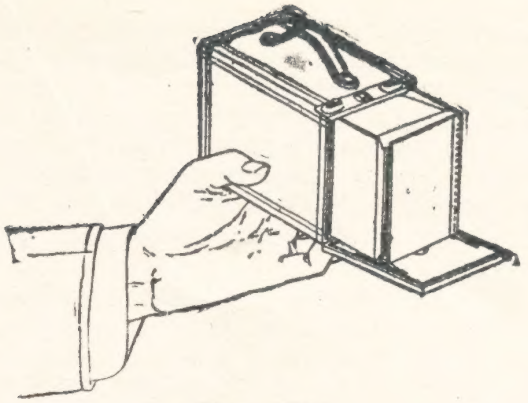


FIG. IV.

3. Grasp bottom of camera and hold as in Fig IV and the roll holder will slide out freely.

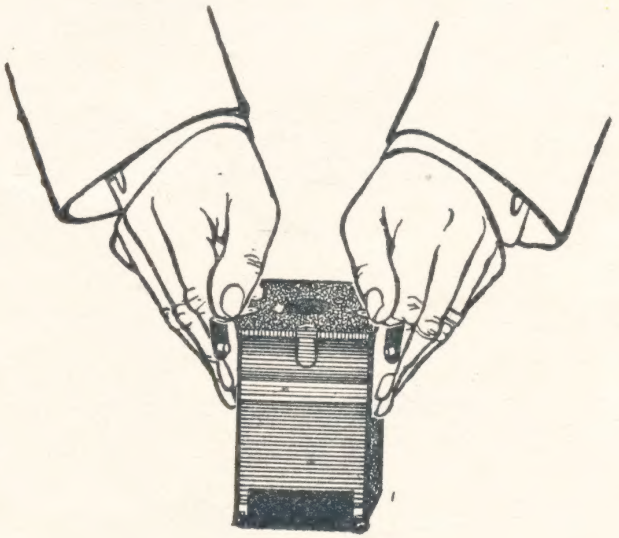


FIG. V.

4. Examine this roll holder carefully and it will be seen that at each forward corner there is a recess which will just hold a spool of film. In the recess on the right side will be seen an empty spool which is to be used as the reel. At the back end of the roll holder is a hinged pasteboard flap with a hole in the upper left hand corner. Care must be taken in loading to see that this flap comes *behind the film.*

5. Spring out spool pins in the end opposite the winding end as shown in Fig. V, insert spool and push spool pins back into place so film spool will revolve on pins. The winding end may always be distinguished by the small hole in the side of roll holder.

Important.

Be sure and get the top of spool at top of roll holder (each spool is marked on the end), when inserting, otherwise your film will come on the wrong side of duplex paper when reeled off and total failure will result. You can readily tell the top side of roll holder, as it contains the opening in the winding end through which the key is inserted in the reel.

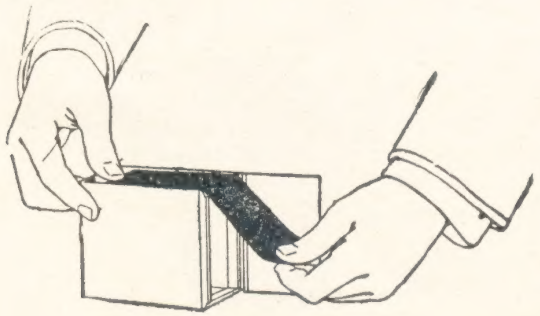


FIG. VI.

6. Now remove the gummed slip that holds down the end of duplex paper and pass the duplex paper across opening in the back of the roll holder (Fig. VI) and under the pasteboard flap and thread the duplex paper through the slit in this reel as shown in Fig. VII, *being extremely careful to have the paper draw straight and true*, and give the spool two or three forward turns (to the left from the key end). The spool may be easily turned by revolving the flanges of the spool with the two thumbs.

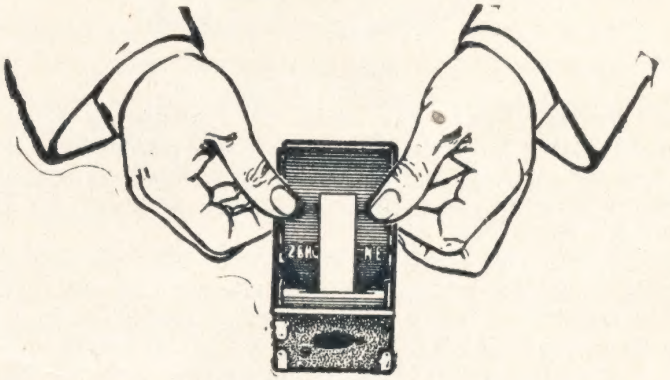


FIG. VII.

Caution.

If you turn off too much of the duplex paper, before the camera is closed, the film will be uncovered and ruined.

7. The camera is now to be closed, reversing the operation shown in Figs. III and IV, pages 6 and 7. In re-inserting the roll holder in the outside box remember that the slotted end of winding reel which shows through round hole in side of roll holder, must be inserted so as to come opposite key hole in outside box.

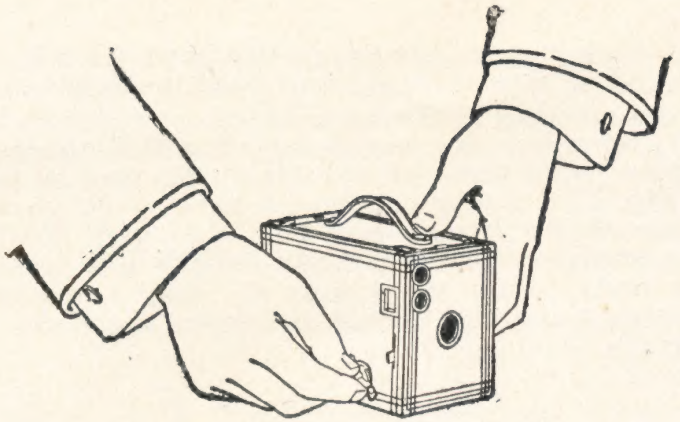


FIG. VIII.

8. Press down on, and at the same time turn the winding key until it fits into position, the web at lower end of key fitting into slot in spool end. This is a reversal of operation shown in Fig. 1, page 5. See Fig. VIII.

9. Turn the key to the left for about fifteen turns until an index hand appears before the little red window in back of camera, this hand is a warning that you are approaching Fig. I, then turn key very slowly until Fig. I appears before the red window, (Fig. 9).

FIG. IX.

The film is now in position for taking the first picture.

PART II

Making the Exposures.

SECTION 1.—INSTANTANEOUS EXPOSURES.

"SNAP SHOTS."

The shutter of the Brownie Camera is always set and is operated by pushing the lever alternately to right or left with the thumb.

If the lever stands at the right hand side of slot simply push it to the left and *vice versa*.

If the spring should be pushed the wrong way, the shutter would simply remain unmoved, and no "click" would be heard, thus indicating that it should be pushed in the opposite direction.

To take instantaneous pictures the object should be in the broad, open sunlight, but the camera should not. The sun should be behind the back or over the shoulder of the operator.

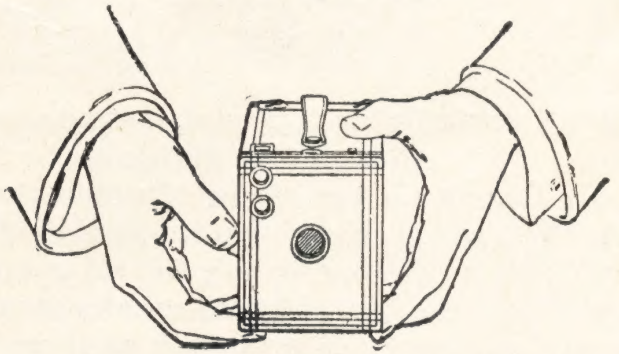


FIG. 1

Use the Largest Stop.

Snap shots should only be made when the largest stop is before the lens. If a smaller stop be used, the light will be so much reduced that it will not sufficiently impress the image on the film and failure will result. In making snap shots both of the slides shown in Fig. II, page 16, should be pushed down to the limit of motion.

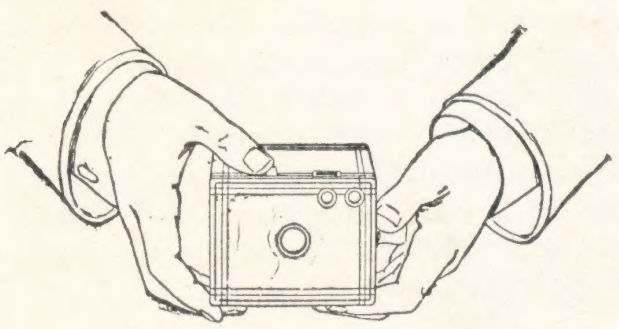


FIG. II.

Slide A controls the time and instantaneous exposures. For snap shots this slide must be down.

Slide B controls the stops, of which there are three. When it is clear down the largest stop is in place. This is the one to use for all snap shots, except where the sunlight is unusually strong, and there are no heavy shadows, such as views on the water or in tropical or semi-tropical climtaes, when

the middle stop may be used. The smallest stop must never be used for snap shots.

Aim the camera at the object to be photographed and locate the image in the finder. There are two finders, one for vertical and the other for horizontal exposures.

FIG. III.

EFFECT PRODUCED BY TILTING THE CAMERA

For a vertical exposure the camera should be held as shown in Fig. I, page 11.

For a horizontal exposure the camera should be held as shown in Fig. II, page 12.

Any object that does not show in the finder will not show in the picture.

All being in readiness

Hold the Camera Steady and Level

as shown in Fig. I or II and press the shutter lever to one side with thumb of the right hand.

This makes the exposure.

Turn a New Film into Position.

Turn the key slowly to the left until the next number appears before the window. (The index hand only appears before figure 1.)

Repeat the foregoing operations for each picture.

If the operator attempts to photograph a tall building, while standing near it, by pointing the camera upward (thinking thereby to center it) the result will be similar to Fig. III.

SECTION 2

Time Exposures Indoors.

Put the Camera in Position.

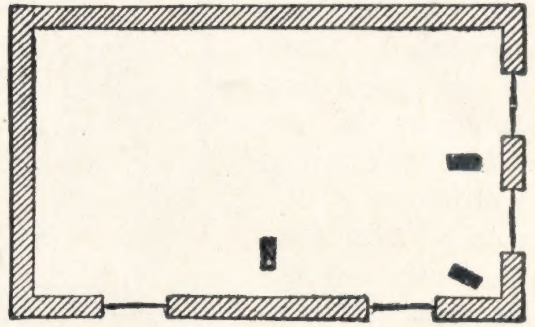


Fig. I. Diagram showing positions for camera.

Use some firm support, like a chair or table. Set in such position that the finder will embrace the view desired.

The diagram (Fig. I) shows the proper positions for the camera. It should not be pointed directly at a window as the glare of light will blur the picture. If all the windows cannot be avoided pull down the shades of such as come within range of the Camera.

Pull out the time slide (A) on left hand side of camera front as shown in Fig. II. When this slide is pulled out the shutter strikes it as it passes the lens, stopping half way across with the opening opposite the lens.

All being in readiness steady the camera with one hand and push the lever to open the shutter; give the proper time (using a watch if more than two seconds) and press the lever in the opposite direction to close the shutter.

Turn a new film into position as described before. (See page 14.)

For interiors the following table is a good guide:

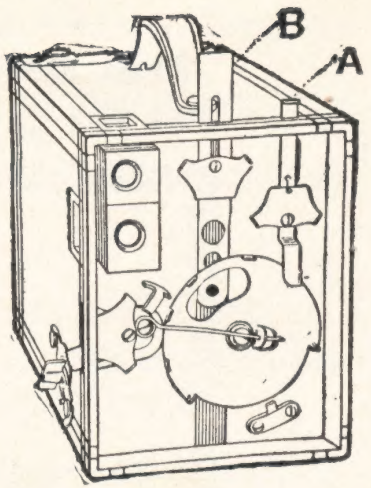


FIG. II.

Fig. II shows the position of lever B when the smallest stop is before the lens.

Time Needed for Interior Exposures.

This table is for the largest stop. When the second stop is used double the time; when the smallest stop is used give four times the time of table.

White walls and more than one window:

bright sun outside, 2 seconds;
hazy sun, 5 seconds:
cloudy bright, 10 seconds;
cloudy dull, 20 seconds.

White walls and only one window:

bright sun outside, 3 seconds;
hazy sun, 8 seconds;
cloudy bright, 15 seconds;
cloudy dull, 30 seconds.

Medium colored walls and hangings, and more than one window:

bright sun outside, 4 seconds;
hazy sun, 10 seconds;
cloudy bright, 20 seconds;
cloudy dull, 40 seconds.

Medium colored walls and hangings and only one window:

bright sun outside, 6 seconds;
hazy sun, 15 seconds;
cloudy bright, 30 seconds;
cloudy dull, 60 seconds.

Dark colored walls and hangings, and more than one window:

bright sun outside, 10 seconds;
hazy sun, 20 seconds;
cloudy bright, 40 seconds;
cloudy dull, 1 minute, 20 seconds.

Dark colored walls and hangings, and only one window:

bright sun outside, 20 seconds;
hazy sun, 40 seconds;
cloudy bright, 1 minute, 20 seconds:
cloudy dull, 2 minutes, 40 seconds.

The foregoing is calculated for rooms whose windows get the direct light from the sky and for hours from three hours after sunrise until three hours before sunset.

If earlier or later, the time required will be longer.

To Make a Portrait.

Place the sitter in a chair partly facing the light, and turn the face slightly toward the camera (which should be at the height of an ordinary table). For a bust picture the camera should be five feet from the figure; for a three-quarter figure seven feet, and for a full figure ten feet. The background should form a contrast with the sitter.

In making portraits where the subject is less than eight feet from the camera, use the smallest stop and time accordingly. (See page 16.) As a general rule use the middle stop for portraits.

Kodak Portrait Attachment.

By the use of a Kodak Portrait Attachment this instrument may be used with a focus of only three and one half feet, thus enabling the amateur to obtain large head and shoulder pictures equaling in size those of an ordinary Mantello photograph.

The attachment is simply an extra lens slipped on over the regular lens and in no way affects the operation of the camera except to change the focus. Price, 50 cents. Be sure and specify what camera the attachment is to be used with when ordering.

Time Exposures in the Open Air.

When the smallest stop is before the lens the light admitted is so much reduced that time exposures out of doors may be made the same as interiors, but the exposure must be much shorter.

WITH SUNSHINE — The shutter can hardly be opened and closed quickly enough to avoid overexposure.

WITH LIGHT CLOUDS—From one-half to one second will be sufficient.

WITH HEAVY CLOUDS—From two to five seconds will be required.

The above is calculated for hours from three hours after sunrise until three hours before sunset and for objects in the open air. For other hours, or for objects in the shadow, under porches or under trees, no accurate directions can be given; experience only can teach the proper exposure to give.

Time exposures cannot be made while the camera is held in the hand. Always place it upon some firm support, such as a chair or table.

STOPS.

The stops should be used as follows:

1 THE LARGEST—For *all ordinary instantaneous exposures.*

2-3 THE MIDDLE—For instantaneous exposures when the sunlight is unusually strong and there are no heavy shadows; such as in views on the seashore, in extremely high, dry climates or on the water or in tropical or semi-tropical climates; also for interior time exposures, the time for which is given in the table on pages 16 and 17.

1-4 THE SMALLEST—For time exposures out doors in cloudy weather. *Not for instantaneous exposures.* The time required for time exposures on cloudy days with smallest stop will range from one-half second to five seconds according to the light. The smaller the stop the sharper the picture.

When setting the stops always see that the one to be used is *brought to the center of the lens* where it catches.

If you use the smallest stop for instantaneous exposures absolute failure will result.

SECTION 3.

Flash Light Pictures.

By the introduction of Eastman's Flash Sheets, picture taking at night has been wonderfully simplified. A package of flash sheets, a piece of cardboard, a pin and a match complete the list of essential extras,

The cost then is :

One package Eastman's Flash Sheets, No. 1, 25c.

With flash sheets no lamp is necessary, there is a minimum of smoke and they are far safer than any of the self-burning flash powders, besides giving a softer light that is less trying to the eyes.

Many interiors can be taken with the flash sheets that are impracticable by daylight, either by reason of a lack of illumination or because there are windows in the direct line of view which cannot be darkened sufficiently to prevent the blurring of the picture.

Evening parties, groups around a dinner or card table or single portraits may be readily made by the use of our flash sheets, thus enabling the amateur to obtain souvenirs of many occasions which, but for the flash light would be quite beyond the range of the art.

Preparation for the Flash.

The camera should be prepared for the time exposure, as directed on page 15 of this Manual, (except that the largest stop must be used) and placed on some level support where it will take in the view desired.

Pin a flash sheet by one corner to a piece of cardboard which has previously been fixed in a perpendicular position. If the cardboard is white it will act as reflector and increase the strength of the picture.

The Flash Sheet should *always* be placed two feet behind and two to three feet to one side of the camera. If placed in front on a line with front of camera, the flash would strike the lens and blur the picture. It should be placed at one side as well as behind, so as to throw a shadow and give a little relief in the lighting. The light should be at the same height or a little higher than the camera. The support upon which the flash is to be made should not project far enough in front of it to cast a shadow in front of the camera. An extra piece of cardboard a foot square placed under the Flash Sheets will prevent any sparks from the flash doing damage.

Taking the Picture.

Having the camera and the Flash Sheet both in position and all being in readiness, open the camera

shutter, stand at arm's length and touch a match held in a split stick at least two feet long, to the lower corner of the Flash Sheet. There will be a bright flash which will impress the picture on the sensitive film. Then push the lever to close the shutter and turn a fresh film into place with the key, ready for another picture.

The Flash Sheets.

The number of sheets required to light a room varies with the distance of the object farthest from the camera, and the color of the walls and hangings.

When two or more sheets are to be used they should be pinned to the card-board, one above the other, the corners slightly overlapping.

Table.

For 10 feet distance and light walls and hangings use 1 sheet.
For 10 feet distance and dark walls and hangings use 2 sheets.
For 15 feet distance and light walls and hangings use 2 sheets.
For 15 feet distance and dark walls and hangings use 3 sheets.
For 25 feet distance and light walls and hangings use 3 sheets.
For 25 feet distance and dark walls and hangings use 4 sheets.

TO MAKE A PORTRAIT—Place the sitter in a chair partly facing the camera (which should be at the height of an ordinary table), and turn the face

slightly toward the camera. For a three-quarter picture this will be seven feet, and for a full figure ten feet.

When using the portrait attachment for flash lights the subject should be only three and one-half feet from the camera.

The flash should be on the side of the camera away from the face, that is, the sitter should not face it. The flash should not be higher than the head of the sitter.

TO MAKE A GROUP.—Arrange the chairs in the form of an arc, facing the camera, so that each chair will be exactly the same distance from the camera. Half the persons composing the group should be seated and the rest should stand behind the chairs. If the group is large any number of chairs may be used, but none of the subjects should be seated on the floor, as sometimes seen in large pictures, because the perspective would be too violent.

BACKGROUNDS.—In making single portraits or groups, care should be taken to have a suitable background against which the figures will show in relief; a light background is better than a dark one, and often a single figure or two will show up well against a lace curtain. For larger groups a medium light wall will be suitable.

The *finder* on the camera will aid the operator in composing the groups so as to get the best effects.

In order to make the image visible in the finder the room will have to be well lighted with ordinary lamplight, which may be left on while the picture is being made, provided none of the lights are placed so that they show in the finder.

Eastman's Flash-Sheets burn more slowly than flash powders, producing a much softer light and are therefore, far preferable in portrait work: the subject, however, should be warned not to move as the picture is not taken *instantaneously*, about one second being required to burn one sheet.

Eastman's Flash Cartridges and Flash Powders

Eastman's Flash Cartridges or Flash Powder may be substituted for the sheets, if desired. We recommend the sheets, however, as more convenient, safer, cheaper and capable of producing the best results. The powder or cartridges are only superior when absolutely *instantaneous* work is essential.

Keep dust out of the Camera

Defective negatives are often caused by particles of dust which have collected on the inside of the camera and settle upon the film in particles that produce small white spots upon the prints.

It is therefore well to wipe out the inside of camera occasionally, with a slightly damp cloth. In summer weather or after the camera has remained idle for any length of time, this needs special attention.

PART III.

Removing the Film.

No dark room is required in changing the spools in the Brownie Camera

The operation can be performed in the open air, but to avoid all liability of fogging the edges of the film it had best be performed in a subdued light.

1. When the last film has been exposed, give the key eighteen extra turns. This covers the film with duplex paper again.

FIG. I.

2. Provide an extra spool of film to fit this camera taking a position at a table as far as possible from any window.

3. Remove the back and the roll holder as shown on pages 5 to 7.

4. Hold ends of duplex paper and sticker together to prevent paper from loosening on reel. Spring out spool pin and lift out reel. Fig. I.

NOTE—If sticker has been wound under reel, revolve spool to bring it up.

5. Fold over half inch at end of duplex paper (so as to make subsequent breaking of the seal easy) and then seal with sticker.

6. Wrap up immediately to prevent the possibility of light being admitted.

7. Now take the empty spool from the recess on the left side of camera and transfer to the winding side bringing the slotted end into which the key is to fit, opposite the key hole.

8. Load as described in Part I, Page 5.

The roll of exposure can now be mailed to us for finishing or you can do the developing and printing yourself.

"Cinch Marks."

If the film and paper loosen up a trifle when taken from the camera, many amateurs are likely to take the cartridge in the hand and wind it as closely as possible, cinching it tightly with a twisting motion. There's nothing more likely to injure the negative than this tight drawing of the film, as it abrades the surface, making fine parallel scratches running lengthwise of the film, which, in some cases, will ruin the negative. *Do not "cinch" the cartridge.* It simply needs to be wound tightly enough so that the duplex paper keeps inside the flanges.

Finishing the Pictures.

The directions that follow (down to page 48) are written on the assumption that your Brownie was purchased with a No. 2 Kodak Box Outfit. If such was not the case all of the articles contained in such box may be obtained separately of any Kodak dealer.

The Kodak Box No. 2 contains:

1 No. 2 Brownie Camera	$2 00
1 No. 2 Brownie Developing Box	1 00
1 Roll No. 2 Brownie Film	20
2 Brownie Box Developing Powders	05
½ lb. pkg. Kodak Acid Fixing Powder	15
1 4-oz. Graduate	10
1 Stirring Rod	05
1 No. 2 Brownie Printing Frame	15
1 pkg. 1 doz. 2¼ x 3¼ Brownie Velox	10
2 oz. bottle Nepera Developing Solution	10
3 Paper Developing Trays	30
1 doz. 2¼ x 3¼ Mounts	10
1 doz. 2¼ x 3¼ Kodak Dry M't'ng Tissue	05
1 Instruction Book	10
	$4.45
Price	$4 00

PART IV.

Developing.

There is no necessity of working in a dark room or waiting until night to develop film, it can be done in daylight at any time and place. And the daylight methods of developing film give better results than the dark room way.

Film may be developed in daylight in two ways; by the Brownie Developing Box method, or by the Kodak Film Tank. Both methods are the same in principle, the Brownie Developing Box being a simplification of the Kodak Film Tank, such simplification being made possible by the short length of the Brownie Film.

For developing Brownie Film we recommend the Brownie Developing Box for simpleness, the result with either the Brownie Developing Box or the Kodak Film Tank being equal.

How to Use the Brownie Developing Box.

The Brownie Developing Box is simply a light tight box of sufficient length to permit the unrolling of the film within it so the developer may

act upon it. The film is unrolled and extended in one loop by means of a cord and winding roller within the box, and is supported in position by means of another roller placed at the opposite end of the box.

A dummy cartridge is provided with each Brownie Developing Box with which one should experiment before attempting to develop an exposed film.

Be Sure.

It is most important that the user of The Brownie Developing Box experiment thoroughly with the dummy film spool. Put this spool through the machine a number of times until you are perfectly familiar with all the operations and can perform them without refering to the manual.

After the dummy spool has been unrolled see if the white paper, representing the film in the dummy spool, is on the *outside* of the loop. If it is not, the spool has not been correctly inserted. The film must be on the outside with the duplex paper on the inside of the loop.

When you thoroughly understand all operations and are ready to develop a roll of film, prepare the developer and fixing bath *for immediate use* according to directions on page 38.

1. Remove cover from box by springing out metal clasps, as shown in Fig. 1.

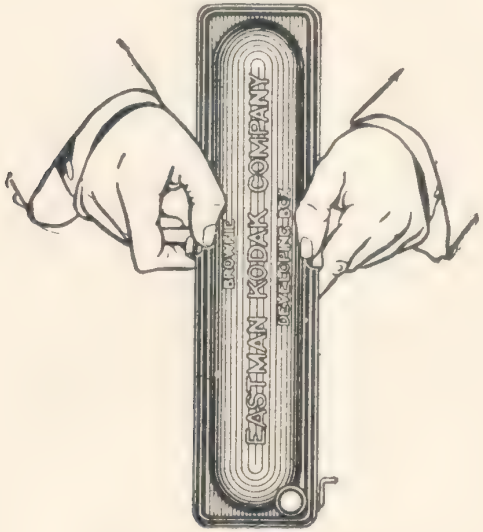


FIG. I.

2. Then fully unwind cord from roller A. Attached to the cord is a metal clip called the Spool Carrier, in which the roll of film is to be placed, as explained in paragraph 5 following.

3. Lift up roller B, being careful not to pull spring above lugs inside of box, and pass spool carrier and cord *over* and around same, as shown in Fig. II.

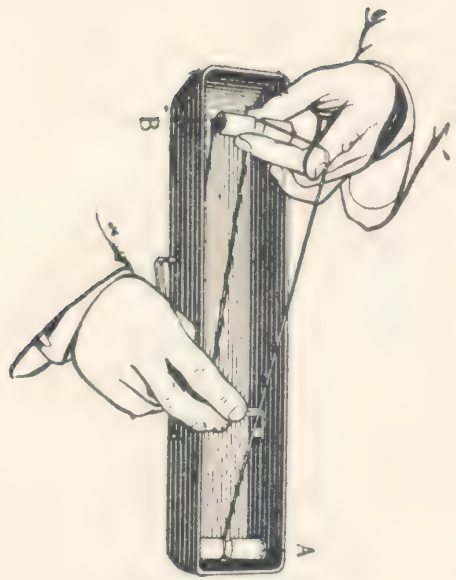


FIG. II.

4. **IMPORTANT.** Film to be used in the Brownie Developing Box must be fastened to the duplex paper at both ends. All films are fastened at one end at our factory.

To fasten the other end break gummed sticker, and holding spool with the *unprinted* side of the duplex paper up, unroll the duplex paper slowly until you uncover one inch of the piece of gummed paper which is fastened to end of film and is to be used as a means of fastening film to duplex paper. **See Fig. III.**

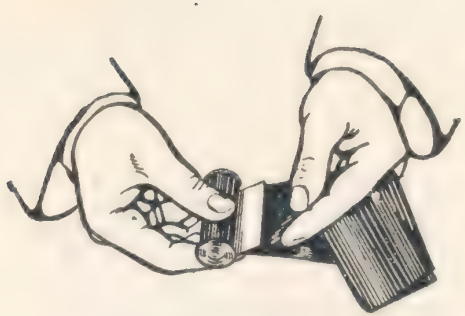


FIG. III.

Moisten the gummed side of sticker evenly for about an inch across the end and stick it down to duplex paper, rubbing thoroughly to secure perfect adhesion.

Wind end of duplex paper on spool again and hold spool tightly clasped in the hand for a few moments to insure gummed sticker holding fast.

5. Insert spool of film in spool carrier as shown in Fig IV.

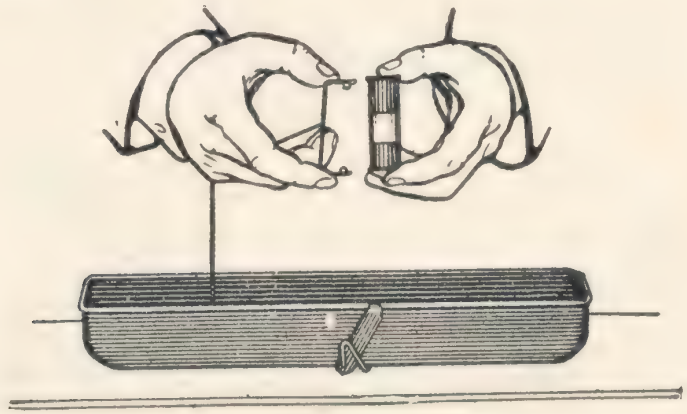


FIG. IV.

6. Turn spool carrier so the duplex paper will unroll from the top and draw it along bottom of box toward Roller A, taking care to keep it *underneath* the cord which passes over roller B. See Fig. V.

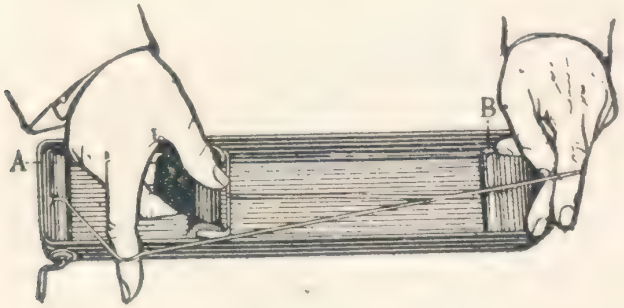


FIG. V.

7. Unroll duplex paper for about three inches and, holding film spool tightly to prevent further unrolling, with duplex paper leading from the *top* pass the end of paper under and between Roller A, and the end of box, as shown in Fig. VI.

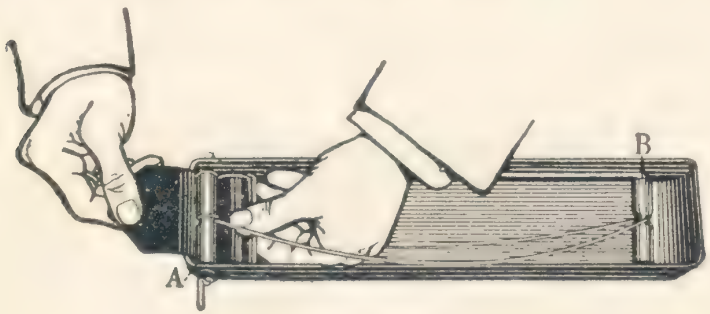


FIG. VI.

8. Push rocking base into position, as shown in Fig. VII.

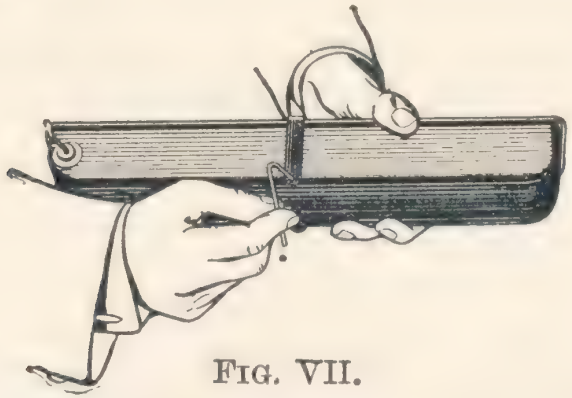


FIG. VII.

9. Having prepared your developer according to directions given on page 38, hold spool carrier tightly against Roller A, and draw out duplex paper until the word "stop" appears, as shown in Fig. VIII.

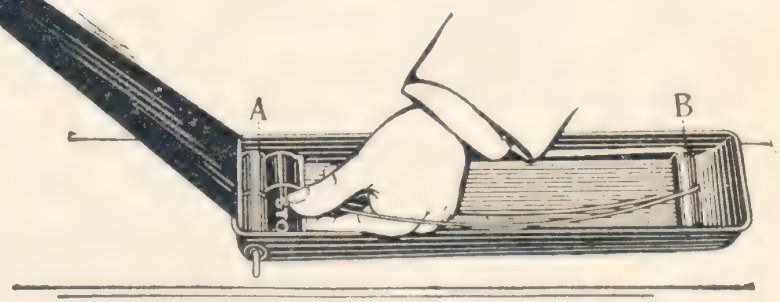


FIG. VIII.

10. Make sure that the cord is drawn taut and perfectly centered in groove in Roller B, then holding end of box containing Roller B, down (opposite end from that containing film) pour in the developer, as shown in Fig. IX.

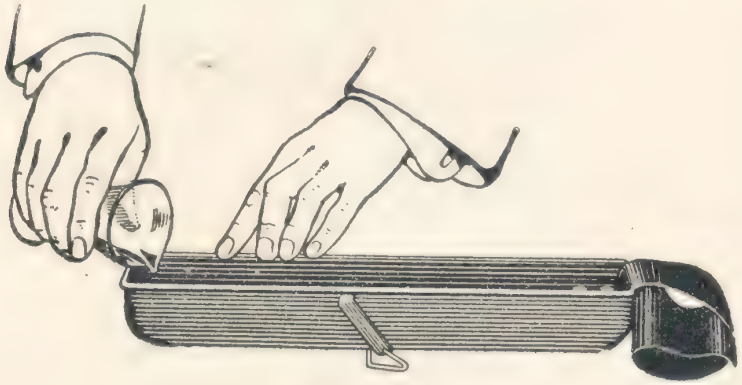


FIG. IX.

11. Replace cover on box with end containing cork over Roller A (roller to which handle is attached), and fasten in place by the metal clasps. *Be sure the cork is in the cover.* When the cover is fastened on the film will be held in place by the duplex paper projecting from the end of the box.

12. Holding box with the Roller B end *down*, unroll the film by turning the crank to the right; as indicated by arrow stamped on side of box. When the film is fully unrolled the handle will refuse to turn. See Fig. X.

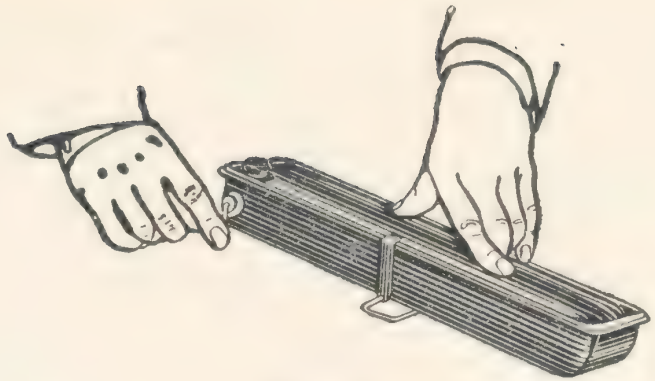


FIG. X.

13. Rock the box gently on its standard for six minutes, when development will be complete.

14. Now remove the cork from cover and pour out developer, fill box with clear water and pour off, repeating this operation three times to wash the film.

Then remove cover from box, take film spool out of spool carrier and withdraw the film and duplex paper, separate film from duplex paper and place immediately in the Fixing Bath, which must be in readiness, prepared in accordance with directions on page 38.

The film may be separated from duplex paper in light of an ordinary room, if the developer is thoroughly washed out.

The operation of separating film and duplex paper should be done over a bowl or bath tub or sink.

When the duplex paper does not free itself readily from back of film, split the paper where possible; this will remove the hard outer surface of the paper, the remaining portion will soon become soaked and can then be removed easily by rubbing gently, while immersed, with the ball of the finger. This adhering of the duplex paper to the film is almost invariably caused by the use of a too warm developer.

Preparing the Developer.

We recommend the use of Pyro. The Brownie Box and Kodak Tank Developer Powders, put up by us, are prepared especially for use with our film and the Brownie Developing Box or the Kodak Film Tank, and are made from carefully tested chemicals.

Fill graduate with four ounces of lukewarm water, open one of the powders and dissolve in it the contents of the large package. Next dissolve the contents of the small package in the solution. When film is ready to develop, pour the contents of graduate into the Brownie Developing Box and add eight ounces of cold water, and the developer will be ready. **The temperature of the developer must be between 62 and 65 degrees Fahr.** In extremes of weather, test temperature of developer with a thermometer.

If some of the contents of the small package stick to the paper, dip the paper into the solution to remove.

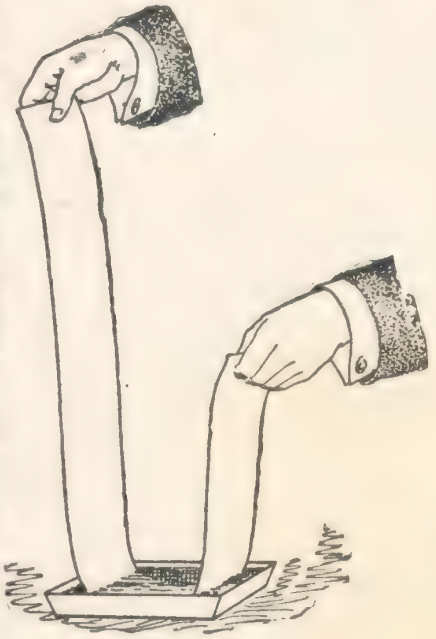
The developer must always be mixed fresh and used for only one roll of film.

The Fixing Bath.

Provide a box of Kodak Acid Fixing Powder which should be prepared as follows: **Remove the**

cover from the box and pour into the cover enough of the Fixing Powder to fill the cover level full.

Put this into a tray or bowl and add eight ounces of cold water. When the powder is thoroughly dissolved add to the solution as much of the Acidifier, which you will find in a small box inside the large one, as will fill the cover of the small box level full. As soon as this has dissolved the Fixing Bath is ready for use. Any quantity of the bath may be prepared in the above proportions.



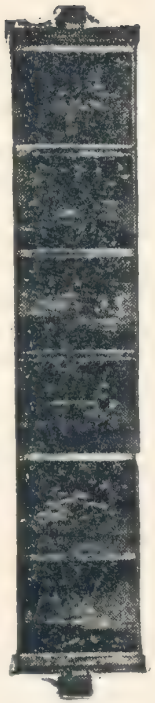
Pass the film face down (the face is the dull side) through the fixing solution as shown in cut, holding one end in each hand. Do this three or four times and then place one end of the film in the tray or small bowl if preferred, still face down, and lower the strip into the solution in folds. Gently press the film where the folds occur, not tightly enough to crack it, down into the solution a few times during the course of fixing. This insures the fixing solution reaching every part of the film. Allow the film to remain in the solution two or three minutes after it has cleared or the milky appearance has disappeared. Then remove for washing.

Washing.

There are several ways of washing film. It may be placed in a wash bowl of cold water and left to soak five minutes each in five changes of cold water, moving it about occasionly to insure this water acting evenly upon it, or it may be given say two changes as above and then left for an hour in a bowl with a very gentle stream of water running in and out.

Drying N. C. Film Negatives.

After tank development when thoroughly washed, snap an Eastman Film Developing Clip on each end of the strip and hang it up to dry or pin it up. Be sure, however, that it swings clear of the wall so that there will be no possibility of either side of the film coming in contact with the latter.



Drying with Clips

In tray development when the film has been cut up, pin by one corner to the edge of a shelf or hang the negative on a stretched string by means of a bent pin, running the pin through the corner of film to the head, then hooking it over the string.

Wipe box dry before developing another roll of film and allow cord to dry before rewinding in Roller A.

The developing solution must be used but once.

The fixing solution may be used repeatedly so long as it remains clear.

PART V.

Printing on Velox.

Brownie negatives give beautiful, soft black and white effects when printed on the Velox paper furnished with the Kodak Box.

Method of Printing.

Open printing frame by pushing up metal catch at end; place the negative face to face with a piece of the Velox paper and insert in the printing frame with the negative next to the glass; close the printing frame and again press down catch, thus holding the negative in close contact with the paper.

The face of the Velox is the concave side. The face of a film negative is the dull side.

Prepare developer by filling graduate to top ring with water and mixing with same the contents of the 2 ounce bottle of N. A. Velox Liquid Developer. Prepare Acid Fixing Bath according to directions on page 38. Temperature of the developer should be 70 degrees Fahr.

Select a safe place for opening packages of paper and developing the prints. In a room illuminated only by a gas flame, or light of equivalent strength, these operations can be carried on with safety at ten feet from the burner. Be careful, however, that the *direct* rays of light do not reach the sheets of unexposed paper.

Provide three trays and in one have the developer, in another water, and in the third the fixing bath.

Fill the printing frame as above instructed.

1st. Expose by placing the frame a few inches from the artificial light used, even exposure being insured by having the frame away from the burner a distance equal to the diagonal of the negative. While exposure by diffused daylight from northern window will insure good results with practice, *the use of artificial light is advised.*

A few seconds will be long enough for printing the average negative when Special Velox is used; Regular Velox will need four or five times as much exposure as Special Velox, if in using both brands, printing frame is held at the same distance from the light. Exposure with various artificial lights, at the distance advised when negatives of average density are to be printed will be approximately as follows :

	Distance from Light	Welsbach Burner	32 c. p. Electric or 6 ft. Gas Burner	16 c. p. Electric or 4 ft. Gas Burner	Av'age Oil Lamp
Regular Velox	7 ins.	40 Sec.	80 Sec.	2 Min.	3 Min.

Note—Regular Velox is supplied with the Kodak Box.

2nd. Immerse the print face up in developer, being sure that it is quickly and evenly covered by the solution. Regular Velox should be developed about fifteen seconds.

3rd. Dip in water for a second to remove the greater part of the developer.

4th. Immediately transfer to the Acid Fixing Bath, where a thorough immersion should be secured to prevent stain (caused by uneven fixing); fifteen minutes or longer should be the time of fixing. A print which flashes up in the developer and gets too dark before it can be conveniently removed from the developing tray, is very much over-exposed, and the time of exposure should be decreased, while inability to obtain a proper print in the time advised for development, indicates that the time of exposure should be increased.

Wash the prints in running water for an hour, or ten changes of water, each change being obtained by passing the prints, one at a time, from one tray of water to another, refilling each tray with fresh water whenever all the prints have been removed from it.

Dry the prints, face down, on cheese cloth or other absorbent fabric, so that they will not curl.

If you are not entirely successful send to us for a *Velox Book*, or enclose one of your prints and we can probably tell you what is your trouble. In making inquiries always give the letter and numbers stamped on the back of the envelope. In absence of this information we cannot make a proper investigation.

Details.

CLEAN DISHES: CLEAN HANDS: The faintest trace of Hypo-sulphite of soda will spoil the prints if it gets into contact with them before the proper time. Great care should therefore be used to have both hands and trays clean.

DEVELOPER once used should not be carried over and used the next day or subsequently.

Don't.

Don't use a tray for developer which has previously been used for hypo solution, it is liable to cause trouble.

Difficulties, Their Cause and Remedy.

VEILED WHITES: caused by forcing development, fogged paper. REMEDY, give more time, screen light. Also caused when image flashes up in developer by too much exposure, in which case give less time.

MUDDY SHADOWS: caused by developer being used for too many prints. REMEDY, use fresh developer.

CONTRASTY PRINTS: caused by insufficient time or negatives too harsh. REMEDY, give more time in first instance, and if trouble is with negatives, give negatives less time; develop further.

STAINS: caused by forcing development, or chemically dirty dishes or hands, insufficient fixing, foreign chemicals. REMEDY, do not allow chemicals other than those given in formulas to come in contact with paper; use fresh fixing; keep prints in constant motion the entire fifteen minutes they remain in fixing, and if due to forcing development give more time in printing.

ROUND, WHITE SPOTS: caused by air bells which form on face of print when developer is first flowed on. REMEDY, use more developer, break air bells with finger.

If other difficulties appear, their cause and remedy will be cheerfully explained if a print showing trouble is sent to us.

PART VI.

Mounting.

The most satisfactory method for mounting prints of any size is by the use of Kodak Dry Mounting Tissue, as by the use of this tissue the print lies perfectly flat in absolute contact even on the thinnest mount and absolutely without curl.

The tissue comes in flat sheets, dry, not sticky, and easy to handle, and being water proof protects the print from any impurities in the mount stock. The process of mounting is as follows: Lay the print on its face and tack to the back a piece of the tissue of the same size by applying the point of a hot flat iron to small spots at opposite ends. Turn the print face up and trim to size desired, and place in proper position on mount, then cover the print with a piece of smooth paper and press the whole surface with a hot flat iron.—*Press, don't rub.* The iron should be just hot enough to siss when touched with the wet finger. If the iron is too hot the tissue will stick to the mount and not to the print, if too cold the tissue will stick to the print and not to the mount.

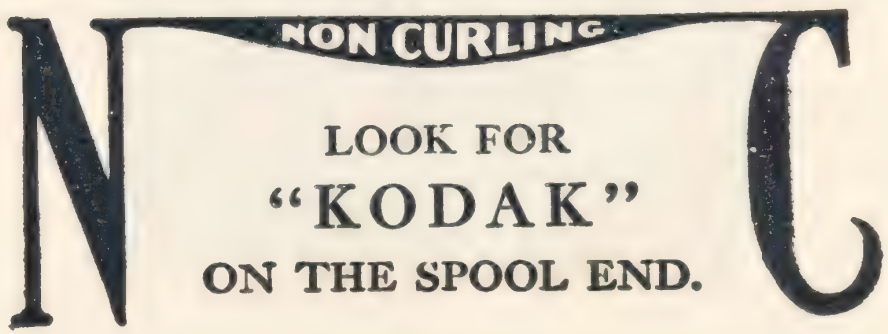
Remedy: Lower or raise the temperature of the iron and apply again.

When mounting with the ordinary paste, prints should be mounted wet. After the prints have been trimmed to correct size, immerse in clean water for a few moments, then place in a pile face down on a sheet of clean glass and squeegee off all surplus moisture, apply the paste with a bristle brush working in the paste thoroughly, then lift the print by the opposite corners, turn it over and place it in proper position on the mount.

Cover with a sheet of clean blotting paper and press into contact with squeegee or rubber print roller.

Load your Kodak with Kodak Film

Look for this trade mark on the box



PART VII.

Developing with a Kodak Film Tank.

For No. 2 Brownie film provide a "Brownie" Kodak Film Tank.

The Kodak Film Tank consists of a wooden box, a light proof apron, a "transferring reel," a metal "solution cup" in which the film is developed, and a hooked rod for removing film from solution. There is also a dummy film cartridge with which one should experiment before using an exposed cartridge. The various parts of the outfit come packed in the box itself.

FIG. I.

1. Take everything out of the box. Take apron and Transferring Reel out of solution cup.

2. Insert the axles marked C and D in the cut, in the holes in the front of box. The front will be toward you when the spool carrier in end of box is at your right.

FIG. II.

3. The axle "C" must be pushed through the hollow spindle which will be found loose in the

box. The two lugs on this spindle are to engage the hooks at end of apron. The axle "D" must be pushed through the hollow rod of the Transferring Reel to hold reel in position as indicated in the illustration. The flanges at each end of the Transferring Reel are marked "Y" in the illustration.

4. Attach one end of the apron to spindle through which axle "C" passes by means of the metal hooks which are to be engaged with the lugs on the spindle. (Fig. 2.) The corrugated side of the rubber bands is to be beneath the apron when it is attached. Turn to left on axle "C" and wind entire apron on to spindle, maintaining a slight tension on apron is so doing by resting one hand on it.

5. Insert film cartridge in spool carrier and close up the movable arm tight against end of spool. Have the duplex paper ("B" in FIG. 1) lead from the top.

Important.

Film to be used in the Kodak Film Tank must be fastened to the duplex paper at both ends. All films are fastened at one end at our factory. For instructions on how to fasten the other end, *see page 32.*

6. Break the sticker that holds down the end of duplex paper, thread the paper underneath wire guard on transferring reel through which axle

"D" passes and turn axle slowly to right until the word "stop" appears on duplex paper.

7. Now hook apron to lugs on axle "D" in precisely the same manner that you hooked the opposite end to axle "C" except that axle "D" turns to the right.

8. Turn handle half a revolution so that apron becomes firmly attached and put on cover of box. Turn axle "D" slowly and steadily until duplex paper, film and apron are rolled up together on transferring reel. As soon as this is completed the handle will turn very freely.

9. Prepare developing solution in solution cup as follows: Put three or four ounces of lukewarm water into solution cup, open one of the Kodak Tank Developer Powders and dissolve in it the contents of the large package. Fill the cup with cold water to the embossed ring—not to the top. Now dissolve the contents of the small package in this solution and the developer will be ready. The temperature of the developer should be between sixty and sixty-five degrees Fahr.

If some of the contents of the small package sticks to the paper, dip the paper into the solution to remove.

The developer must always be mixed fresh and used for only one roll of film.

10. Remove cover from box and draw out axle "D," holding apron and duplex paper with other hand to keep end of apron from loosening.

11. Remove entire Transferring Reel (now containing apron, duplex paper and film) which is freed by pulling out axle "D," and insert immediately in the previously prepared developer.

In removing reel do not squeeze the apron but hold it loosely or slip a rubber band about it to keep from unrolling.

Using the Solution Cup.

12. Having filled Solution Cup, lower Transferring Reel into cup, either end first. (Fig. 3). Let reel slide down slowly. The operation of removing reel from box can be done in the light of an ordinary room but for safety it is well that the light should not be too bright. Place the box cover on solution cup and allow development to proceed for twenty minutes.

The developer reaches all parts of the film immediately.

13. After three minutes turn the Transferring Reel in the cup end for end, after seven minutes again reverse it, and again after fifteen minutes. The wire hook is to be used for lifting the reel out of the cup. Hook on to the cross-bar in one end of

FIG. III.

reel. When the end of reel containing cross-bar is at the bottom of cup, the hook is just long enough to catch the cross-bar.

Note.—Immediately after lowering reel into solution cup catch it with the wire hook and move gently up and down two or three times, but not allowing reel to come above surface of developing solution. This is to expel air bubbles.

14. When development is completed pour out developer and fill cup with clear, cold water and pour

off three times to wash the film. Then remove Transferring Reel, separate film from duplex paper and place immediately in the Fixing Bath which should be in readiness, prepared in accordance with directions on page 38.

The film may be separated from duplex paper in light of an ordinary room if the developer is thoroughly washed out.

The operation of separating film and duplex paper should be done over a bowl or bath tub or sink. See page 37.

If the Film Tank is not to be used again immediately the apron and tank should be washed and wiped dry. The apron will dry almost instantly if immersed in very hot water.

Keep apron wound on Transferring Reel when not in use.

Developing Several Rolls of Film at Once.

Several rolls of film may be developed at the same time if the operator wishes. To do this it is necessary to have a "Duplicating Outfit" consisting of one Solution Cup, one Transferring Reel and one Apron for each additional roll of film to be developed. The extra rolls of film may then be wound onto Transferring Reels as previously described and immersed in the Solution Cups.

PART VIII.

Developing in the Dark Room.

Provide:

1 Kodak Candle lamp . . .	$ .25
4 Developing Trays	.40
1 4-oz Graduate	.10
1 Stirring Rod	.05
1 Box (5 tubes) Eastman's Special Developing Powders . . .	.25
½ pound Kodak Acid Fixing Powder	.15

Also provide a pair of shears, a pitcher of cold water (preferably ice water), a pail for slops, and a dark room having a shelf or table.

By a dark room is meant one that is wholly dark—not a ray of light in it. Such a room can easily be secured at night almost anywhere. The reason a dark room is required is that the film is extremely sensitive to white light, either daylight or lamplight, and would be spoiled if exposed to it even for the fraction of a second.

Having provided such a room or closet, where, when the door is closed, no ray of light can be seen, set upon the table or shelf the Kodak Candle Lamp.

The lamp gives a subdued red light which will not injure the film unless it is held close to it.

Set the lamp on the table at least eighteen inches from the operator.

1. Fill one of the trays nearly full of water (first tray).

2. Open one of the Eastman Special Developing Tubes, then put the contents (two chemicals) into graduate and fill it up to the four-ounce mark with cold water. Stir until dissolved, with the wooden stirring rod and pour into the second tray.

3. To develop film unroll the film and detach the entire strip from the duplex paper.

4. Pass the film through the tray of clean cold water in the same manner as shown in cut on page 39 holding one end in each hand. Pass through the water several times, that there may be no bubbles remaining on the film. When it is thoroughly wet with no air bubbles, it is ready for development.

5. Now pass the film through the developer in the same manner as described for wetting it and shown in cut. Keep it constantly in motion, and in about one minute the high lights will begin to darken and you will readily be able to distinguish the unexposed sections between the negatives, and in about two minutes, will be able to distinguish objects in the picture. Complete development in the strip, giving sufficient length of development to bring out what detail you can in the thinnest

negatives. There is no harm in having your negatives of different density. This can be set right in the printing. The difference in density does not affect the difference in contrast.

Keep the strip which is being developed constantly in motion, allowing the developer to act five to ten minutes. The progress of development may be watched by holding the negatives up to the lamp from time to time.

When developing Eastman's N, C. Film, use a red lamp and take care not to hold the film close to the lamp for any length of time. This film is very rapid and is orthochromatic, therefore liable to fog unless handled very carefully.

6. After completing development cut the negative apart with a pair of shears, transfer to the third tray and rinse two or three times with clear, cold water.

PART IX.

Formulae.

Developer for Brownie Developing Box. Use the the following for six minute development:

Pyro - - - - - - -	10 grains
Sulphite of Soda, desiccated -	30 grains
Carbonate of Soda, desiccated	20 grains
Water - - - - - -	12 ounces

Developer for Brownie Film Tank. Use the following for twenty minute development:

Pyro - - - - - -	10 grains
Sulphite of Soda, desiccated -	30 grains
Carbonate of Soda, desiccated	20 grains

Dissolve the chemicals in order named in five or six ounces of luke warm water, then add cold water to fill tank to embossed ring.

Temperature of Developer 65° Fahr. for either Box or Tank. This is very important.

Acid Fixing Bath.

Eastman N. C. Film must always be fixed in an Acid Fixing Bath.

There is nothing superior to the Kodak Acid Fixing Powders, but the following formula may be used if desired:

Water - - - - - - - -	16 oz.
Hypo sulphite of Soda - - -	4 oz.
Sulphite of Soda, desiccated - -	80 gr.

When fully dissolved add the following hardener:

Powdered Alum - - - - -	⅛ oz.
Citric Acid - - - - - - -	⅛ oz.

This bath may be made up at any time in advance and be used so long as it retains its strength, or is not sufficiently discolored by developer carried into it as to stain negatives.

If the time of development and temperature of developer have been correct and the exposures within the latitude of the film good negatives must result, but if error has been made in development the cause and remedy will be found in the following:

Over-Development.

Over-development may be caused by a mistake in leaving films in the developer too long, by using solutions too warm or by those who mix their own developer in getting the developing agent too strong.

In this case the negative is very strong and intense by transmitted light and requires a very long time to print. The remedy is to reduce by use of Eastman's Reducer or by the following method:

Reducer.

First soak negative 20 minutes in water, then immerse in:

Water - - - - -	6 ounces
Hyposulphite of Soda - -	½ ounce
Ferri-Cyanide Potassium (saturated solution) - - - -	20 drops

Rock tray gently back and forth until negative has been reduced to the desired density, then wash 10 minutes in running water or in four changes of water.

Negatives may be reduced locally by applying the above solution to the dense parts with a camel's hair brush, rinsing off the reducer with clear water occasionally to prevent its running onto the parts of the negative that do not require reducing.

Under-Development.

This defect would be caused by a mistake in removing film from developer too soon, by using solution too cold or by an error in compounding chemicals. It is obvious that neither of these defects will occur in Tank Development, if instructions are properly followed.

Intensification by Re-Development

There are a number of different processes for intensifying under-developed negatives, the most common being by means of Bichloride of Mercury, and Sodium Sulphite or Ammonia.

This method, though simple to use, has its disadvantages, as it builds up the highlights out of proportion to the weaker portions of the negative, and also, unless carefully handled is apt to produce iridescent stains, or granular markings that are impossible to remove.

While the method of intensification by re-development is only comparatively new, the now common use of Velox and Royal Re-developer for Sepia tones on Velox and Bromide prints will make this the most effective means of intensification.

Velox or Royal Re-developer may be used in exactly the same manner as for producing Sepia tones on developing paper.

Negatives intensified by re-development are built up evenly, without undue contrast and without the chance of staining.

The advantage of being able to use the chemicals for two different purposes (Sepia toning prints or intensifying negatives) is obvious, the result in either case being all that could be desired.

Be Sure to Use Pure Chemicals

To get the best negatives from your films—to get the best prints from your negatives—it is imperative that the chemicals which you use be absolutely pure.

For all our film and papers we furnish powders and solutions mixed in just the proper proportions and compounded from the purest chemicals, rigidly tested in our own laboratories.

But we go even further than this. For those who prefer to mix their own solutions by formula, we have prepared a line of carefully tested standard photographic chemicals.

Don't mar good films and plates and good paper with inferior chemicals.

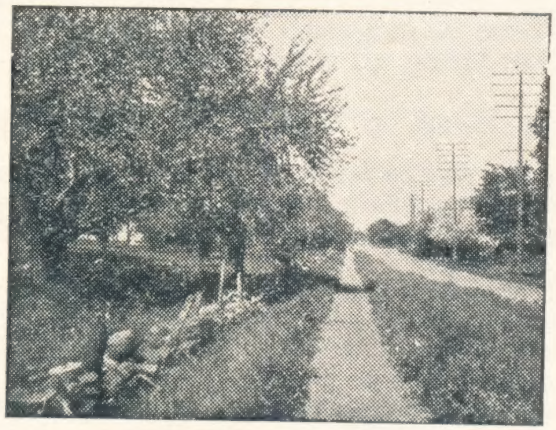
This seal is a guaranty of the highest purity. Be sure it is on the package before purchasing.

EASTMAN KODAK Co.,

Rochester, N. Y.

Clean Lenses.

Dirty or dusty lenses are frequently the cause for photographic failures. These pictures illustrate this point clearly. The sharp, full timed



CLEAN LENS.

picture above was taken with the lens clean and in good order. To produce the effect shown in the picture on opposite page, the operator lightly touched the face of the lens with his thumb, which was slightly damp with perspiration.

Lenses should be frequently examined by looking *through* them, and if found to be dirty, should be wiped both front and back, with a soft, clean linen handkerchief. In summer weather this

needs special attention. Large spots of dust or dirt on the lens will cause defects in the picture, while if the lens is evenly covered with a film of dust, dirt or moisture, the effect will be to cut off light and make the picture under-timed.

DIRTY LENS.

Defective negatives are also often caused by particles of dust which have collected on the inside of the camera and settle upon the film in particles that produce small white spots upon the prints.

It is therefore well to wipe out the inside of camera occasionally, with a slightly damp cloth. After the camera has remained idle for any length of time, this needs special attention.

PRICE LIST.

No. 2 Brownie Camera, capacity 6 exposures, 2¼ x 3¼, not loaded	$2 00
No. 2 Brownie Camera Carrying Case	75
Light-Proof Film Cartridge, 6 exposures, 2¼ x 3¼	20
Box 4 Light-proof Film Cartridges, 6 exposures	80
Brownie Developing Box No. 2	1 00
Brownie Kodak Film Tank	2 50
Duplicating Outfit for same	1 25
Developer Powders for Brownie Developing Box or Brownie Tank, per package, ½ doz.	15
Kodak Acid Fixing Powder, 1-lb. package	25
Do., ½-lb. package	15
Do., ¼-lb. package	10
Kodak Dry Mounting Tissue, per package, 3 dozen (2¼ x 3¼)	10
Solio Paper 2¼ x 3¼, per package, 2 dozen	20
Combined Toning and Fxing Solution for Solio, per 8-ounce bottle	50
Do., 4-ounce bottle	30
Packed in Mailing case, mail paid, 20c add'l.	
Eastman's Reducer, pkg. 5 tubes	25
Velox Re-Developer, per pkg,	50
Eastman's Sepia Paper, 2 dozen, 2¼ x 3¼	15
Brownie Velox paper, per dozen, 2¼ x 3¼	10
Eastman's Special Developer Powders, in hermetically sealed glass tubes, per package of 5 tubes	25
Eastman's Pyro Developer Powders, per ½ doz.	25
Eastman's Flash Sheets, No. 1, per package, ½ dozen	25
Do. No. 2, per package, ½ dozen	40
Kodak Trimming Boards, 5-inch	40